

## ***Pre-Paint>Fuselage>Empennage>Fit horizontal stabiliser***

### **Objectives of this task:**

To fit the horizontal stabiliser to the fuselage and glass it in place. Note that the elevator hinges were fitted in the previous task *Pre-Paint>Fuselage>Empennage>Fit elevator*.

### **Materials required:**

Epoxy resin and flock

Glass fibre cloth and peel cloth in the bag labelled: “*Horizontal Stabiliser*”

### **Steps**

1. Level the aircraft
2. Fit the stabiliser
3. Glass the tail-cone
4. Glass the stabiliser

### ***Level the aircraft***



The aircraft should be fixed in a “wings level” attitude prior to fitting. Place a 3” block on the top of each front wing mounting lug and place a spirit level across the top of the cabin so that it rests on both blocks. Pack the main wheels as required to level the aircraft.



Clamp a straightedge (a 2 or 3 metre length of aluminium angle works well) across the back of the door frames at the height of the fuselage joint line: ensure that the straightedge is level. This will be your main reference for aligning the horizontal stabiliser.

### ***Fit the stabiliser***

These instructions only apply to installing tailplanes with part number 2A109A0D (for the J230 kit) or 2A032D0D (for the J170 kit). Older tailplanes require different instructions.

These fitting instructions also apply to the special short horizontal stabiliser (p/n 2A109F0N, for the J230 kit) which is about 300mm shorter than 2A109A0D and uses large end caps to make up the difference.

**Note:** It is important that you determine which horizontal stabiliser you have.

Prepare the stabiliser by taping up the inboard elevator hinges to prevent any resin getting into the hinge pins. From the previous task you will have a marked centreline on the stabiliser: test fit the stabiliser to the rear of the fuselage using the stabiliser centreline as a lateral location guide against the fuselage centreline.



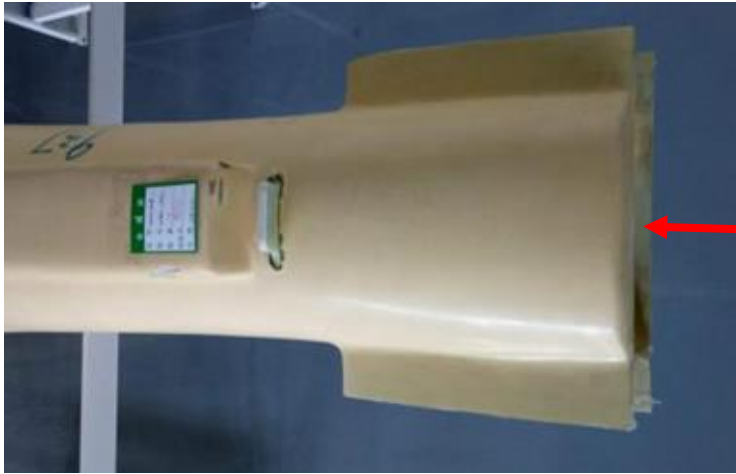
Push the stabiliser fully forward into the rear of the fuselage and check that each end of the stabiliser is an equal distance back from the straightedge – use 2 tape measures as shown circled above, one each side, and carefully move the stabiliser until the measurements are exactly the same. Sight along the fuselage from the rear and confirm that the stabiliser is level and lined up with the straightedge. The chord line of the stabiliser is to be angled down 3 degrees at the leading edge. Make any adjustments necessary.

When the stabiliser is aligned correctly, secure the stabiliser to the fuselage with self-tapping screws, using 10 screws per side. These screws will be removed after the stabiliser has been finally fitted. Run a pencil line around the stabiliser along the fuselage join.

Remove the stabiliser from the fuselage and remove the peel cloth from the rear of the fuselage, then lightly sand all the surfaces to be joined – the pencil line on the stabiliser will act as a guide for where to sand and where to coat with resin.

## ***Flocking in Horizontal Stabiliser***

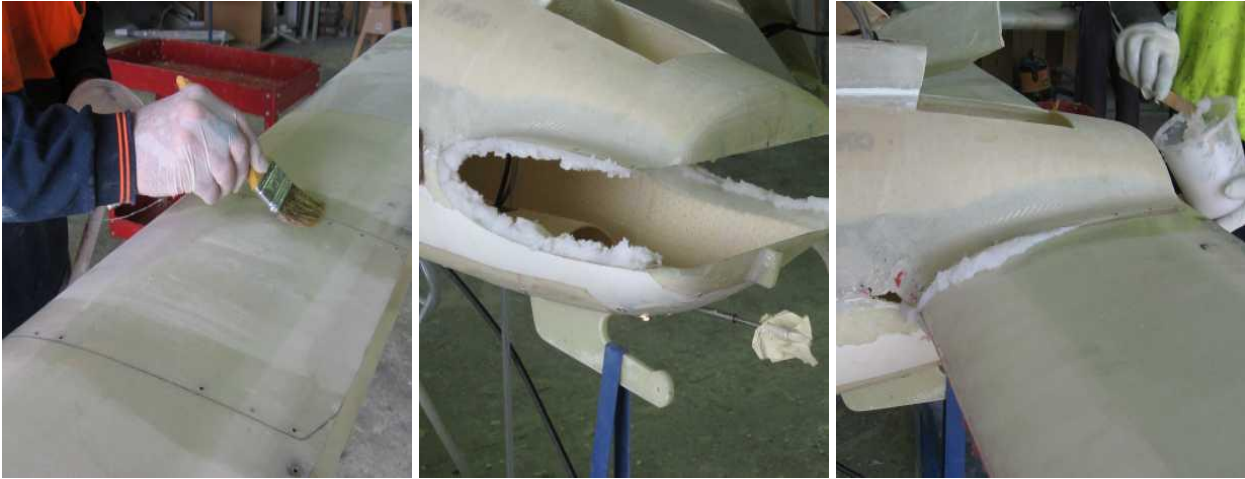
Before flocking in the stabiliser it is important to identify which fuselage you have in your kit and whether a 'tail-cone' is required or not. The following identifies the difference in fuselage flange attachment.



Fuselages without a rear flange DO require a tail-cone (follow the instructions listed in the 'glass the tail cone section')



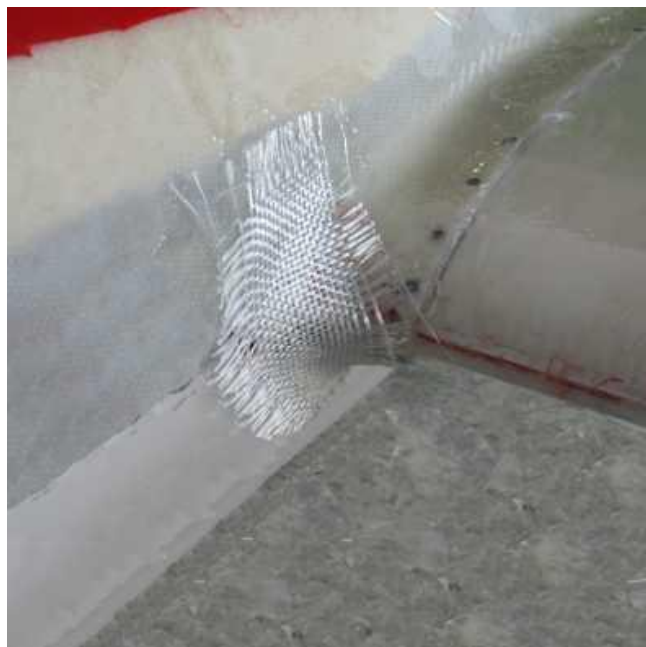
Fuselages with a rear flange DO NOT require a tail-cone and need only be flocked in along the side and rear fuselage flanges



Mix a batch of resin and divide into 2 parts. Coat all the surfaces to be joined. Add flock to one part of the resin and apply a layer to the rear of the fuselage then slide the stabiliser in to place, pushing it fully forward. Open the join and use a mixing stick to force flock into the sides and rear of the join, working from the inside of the empennage through the hole in the top, then smooth the flock along the outside. Fix the stabiliser in place with the self-tapping screws, do a final check of the alignment and leave overnight to cure.

Next day, remove the self-tapping screws that were used to temporarily fix the stabiliser in place. If they are difficult to remove heating each screw with a soldering iron will help.

Lightly sand the surface around the root of the join between the leading edge of the horizontal stabiliser and the fuselage, then mix a small batch of resin and coat the surfaces where the glass fibre cloth will be placed. Cut a small square of glass fibre cloth to cover the root of the join as shown below and brush it into place.



This completes the *Pre-Paint>Fuselage>Empennage>Fit horizontal stabiliser* task if you have Horizontal Stabiliser P/N 2A109A0D, 2A109F0N (for J230 kits) or 2A023D0D (for J170 kits), if your P/N is 2A069A0D then continue.

## Glass the tail-cone

First ensure if this step is necessary (check the previous comparison between fuselages to see whether you need to glass in a Tail Cone or not).

In this step you will apply 3 layers of 320 x 200mm glass fibre cloth to the tailcone, starting at the top and wrapping the glass cloth behind the stabiliser and under the tailcone.



First cut a piece of foam 225mm long, 57mm high & 27mm deep and fit it to the rear of the stabiliser, tapering it towards the bottom as shown in the photo above left, and cut a thin strip of foam to fill the void under the stabiliser.

Mix a batch of resin and coat the tailcone and the foam blocks and flock them into place. Place the first sheet of glass fibre cloth centrally on the tailcone and brush it on, then down over the foam blocks, cut to clear the elevator stop and brush under the tailcone taking care to avoid any bubbles or gaps.



The second layer of glass cloth is placed offset to the right as shown above and brushed on in a similar manner, followed by the third layer, which is offset to the left by the same amount.

For reduce sanding then apply peel cloth over all the glassed surfaces and brush on carefully to ensure a smooth finish.



This completes the *Pre-Paint>Fuselage>Empennage>Fit horizontal stabiliser* task.